PUTTY UNIT
Operations Manual

MagnumVenusPlastech

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Terms & Conditions of Sale:

- Customs duties, import and export licenses and certificates, if required, and all local taxes are excluded from this offer. If US state and local taxes are applicable and not included in equipment invoice, such amount may be invoiced later.

- Delivery dates or shipping schedules are approximate and based upon the most recent information available at the time of order. Dates may be adjusted upon receipt of subsequent information or modification of order. Seller will ship prior to the delivery date if possible, but not without Buyer's consent on Advanced Equipment sales.

- All contract dates and timelines begin upon receipt at MVP of customer purchase order, signed Terms and Conditions of Sale (if applicable), and down payment per quotation (if applicable).

- If shipments are delayed by the Buyer, or because the Buyer's account is in arrears, payments shall become due on the date when the Seller is prepared to make shipment. Products held by the Seller for the Buyer shall be at the risk and expense of the Buyer.

- Damages, defects or shortages must be communicated immediately to MVP. Discrepancy in pricing and/or quantities on invoices must be reported within 30 days of the invoice date. Claims made 30 days or more following the invoice date will not be honored.

- Permission to return items must be requested and granted in advance. No credit will be given if items are returned prior to requesting and receiving permission. All returns are subject to a restocking fee. The standard 15% charges may be increased or decreased depending on the reason for the return. Special ordered items may not be returned.

- Seller warrants that the mechanical operation of the goods as specified shall be free from faults in respect to materials and workmanship for a period of 12 months for parts from the date of invoice. For systems, 12 months from start-up or, if earlier, 18 months from the date of the Bills of Lading. The warranty does not cover general wear and tear or damage due to negligence or improper use. Seller's liability under the warranty shall be limited solely to repair or replacement costs, and has no responsibility for reimbursing repair cost incurred by Buyer in connection with equipment without first giving written authorization for such charges. Seller makes no express warranties except those set forth in this agreement, and disclaims all other warranties, expressed or implied, including without limitation, implied warranties of non-infringement merchantability and fitness for a particular purpose. Seller accepts no liability for loss of production, loss of profits, or other direct or indirect damages. In any claim by the Buyer

against the Seller in respect of the goods, the liability of the Seller shall be limited to the value of the goods.

- Many factors beyond Seller's control contribute to the success of Buyer's finished products, such as raw materials used to manufacture the product. Equipment is warranted to perform to specifications detailed in quotation, but Seller is not liable for quality or quantity of finished products produced by Buyer.

- The country of origin is the United States of America. Sale, installation and all rights of the parties are governed by the laws of the state of Florida. Venue with regard to any litigation shall be in Pinellas County, Florida. The parties agree to waive all rights to trial by jury as to any and all disputes.

- The goods remain the property of the Seller until full payment is received.

- Sale of equipment is subject to application and issuance of proper US Government export license and regulations, if applicable.

- Installation of equipment is responsibility of Buyer and Seller, with cost responsibility and number of days provided as detailed in original customer Quotation. Seller will provide installation supervision personnel within 30 days of customer request. If installation is delayed by the Buyer more than six months from the date of shipment, or if customer facility or material/parts are not prepared for installation, seller will invoice full installation costs, up to $1,250 a day plus expenses, for each MVP installation technician on site. Seller has the option to waive this fee at its discretion.

- Parties shall be excused for delays caused by embargoes, acts of civil or military authorities, Acts of God, or other circumstances beyond the reasonable control of the parties. Notification of such delays must be made in writing within ten days of occurrence.

- Our agreement supersedes any previous agreement and applies in full.

SAFETY & WARNING INFORMATION:

OPERATING YOUR POLYESTER SYSTEM SAFELY

1. Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safety. This system has been specifically designed for use of Polyester Resin, Gel-Coat, and Methyl Ethyl Ketone Peroxides (MEKP) applications. Other formulations or blends considered for use in this equipment is strictly prohibited without the expressed consent by Magnum Venus Plastech Inc. Magnum Venus Plastech cannot eliminate every danger nor foresee every circumstance that might cause an injury during equipment operation. Some risks, such as the high pressure liquid stream that exits the spray tip, are inherent to the nature of the machine operation and are necessary to the process in order to manufacture the end-product. For this reason, ALL personnel involved in polyester operations should read and understand the Safety Manual. It is very important for the safety of employees involved in the operation that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation. Each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures. Magnum Venus Plastech hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program. Magnum Venus Plastech recommends this Safety Manual remain on your equipment at all times for your personnel safety. In addition to the manual, Magnum Venus Plastech recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

1910.94 Pertaining to Ventilation.

1910.106 Pertaining to flammable liquids

1910.107 Pertaining to spray finishing operations, particularly Paragraph (m) Organic Peroxides and Dual Component Coatings.

Other standards and recognized authorities to consult are the National Fire Protection Association (NFPA) bulletins as follows:

NFPA No.33 Chapter 14, Organic Peroxides and Dual Component Materials

NFPA No.63 Dust Explosion Prevention

NFPA No.70 National Electrical Code

NFPA No.77 Static Electricity

NFPA No.91 Blower and Exhaust System

NFPA No.654 Plastics Industry Dust Hazards

Type of Fire Extinguishing equipment recommended: Fire Extinguisher – code ABC, rating number 4a60bc.

Extinguishing Media – Foam, Carbon Dioxide, Dry Chemical, Water Fog.

Copies of the above bulletins are available, at a nominal charge from:

National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210

Research Report No.11 of the American Insurance Association deal with “Fire, Explosion and Health Hazards of Organic Peroxides”. It is published by:

American Insurance Association
85 John Street
New York, NY 10038

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

1.2 Personal Safety Equipment

Magnum Venus Plastech recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:

Magnum Venus Plastech recommends that the user consult the state and local regulations established for all Safety equipment listed.

2.0 Material Safety

2.1 Hazards Associated with Laminating Operations

The major hazards which should be guarded against in polyester laminating operations are those associated with:

1. The flammability and explosion dangers of the catalyst normally used – Methyl Ethyl Ketone Peroxide (MEKP).

2. The flammability dangers of clean-up solvents sometimes used (Magnum Venus Plastech recommends that clean-up solvents be non-flammable), and of resin diluents used, such as styrene.

3. The flammability dangers of catalyst diluents, if used. (Magnum Venus Plastech recommends that catalyst not be diluted.

4. The flammability dangers of the uncured liquid resins used.

5. The combustibility dangers of the cured laminate, accumulations of over spray, and laminate sandings.

6. The toxicity dangers of all the chemicals used in laminating operations with respect to ingestion, inhalation and skin and eye hazards.

2.2 Catalyst (Methyl Ethyl Ketone Peroxide)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the "unstable (reactive)" chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal. MEKP is a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called "MEKP") and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.

Contamination with promoters or materials containing promoters, such as laminate sandings, or with any readily oxidizing material, such as brass or iron, will cause exothermic "redox" reactions which can become explosive in nature. Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT).

Researchers have reported measuring pressure rates-of-rise well in excess of 100,000 psi per second when certain MEKP's reach their SADT. (For comparison, the highest pressure rate-of-rise listed in NFPA Bulletin NO.68, "Explosion Venting", is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second. Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts. If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result from improper handling of MEKP, especially in regards to contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use and disposal of MEKP and other hazardous materials used in the laminating operation. In addition, users should make every effort to:

A. Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.

B. Keep MEKP away from heat, sparks and open flames.

C. Prevent contamination of MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum and non-stainless steels.

D. Never add MEKP to anything that is hot, since explosive decomposition may result.

E. Avoid contact with skin, eyes and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves and eye protection must be worn. Firefighting equipment should be at hand and ready.

F. Avoid spillage, which can heat up to the point of self-ignition.

G. Repair any leaks discovered in the catalyst system immediately, and clean up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.

H. Use only original equipment or equivalent parts from Magnum Venus Plastech in the catalyst system (i.e.: hoses, fitting, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.

I. Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank, such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to which the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

2.3 Clean-Up Solvents and Resin Diluents

WARNING

A hazardous situation may be present in your pressurized fluid system! Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). The explosion could cause serious injury, death and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon Solvents. Some Magnum Venus Plastech spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon Solvents.

A. There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.

a. The presence of HHC solvents. 1,1,1 – Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing. b. Aluminum or Galvanized Parts. Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.

b. Equipment capable of withstanding pressure. When HHC solvent contacts aluminum or galvanized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions.

When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal; any amount of aluminum is too much.

A. The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEKP, alcohol, and toluene, may render the inhibitors ineffective.

B. The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.

C. Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys, which will safely prevent the chemical reaction under all circumstances.

D. Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many State Implementation Plans as Volatile Organic Compounds

(VOC's), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.

WARNING: **Do not use Halogenated Hydrocarbon solvents in pressurized fluid systems having aluminum or galvanized wetted parts.**

NOTE: **Magnum Venus Plastech is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in closed fluid system.** ***TAKE IMMEDIATE ACTION…*** **Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.**

A. Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

B. Magnum Venus Plastech recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.

C. If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.

D. Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.

E. You should allow only enough solvent for one day's use in your laminating area.

F. "NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.

G. Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No.91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.

H. Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

2.4 Catalyst Diluents

Magnum Venus Plastech spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. Magnum Venus Plastech, therefore, recommends that diluents not be used. This avoids the possible contamination which could lead to an explosion due to the handling and mixing of MEKP and diluents. In addition, it eliminates any problems from the diluents being contaminated through rust particles in drums, poor quality control on the part of the diluents suppliers, or any other reason. If, however, diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferable, the supplier should premix the catalyst to prevent possible “on the job” contamination while mixing.

WARNING

If diluents are not used, it should be remembered that catalyst spillage, gun, hose and packing leaks are potentially more hazardous, since each drop contains a higher concentration of catalyst, and therefore will react quicker with over spray and the leak.

2.5 Cured Laminate, Overspray and Laminate Sandings Accumulation

A. Remove all accumulations of overspray, FRP sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire; in addition, the fire would burn hotter and longer.

B. Floor coverings, if used, should be non-combustible.

C. Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, over-sprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent this spillage and leakage, you should:

1. Maintain your Magnum Venus Plastech System. Check the gun several times daily for catalyst and resin packing or valve leaks. REPAIR ALL LEAKS IMMEDIATELY.

2. Never leave the gun hanging over, or lying inside the mold. A catalyst leak in this situation would certainly damage the part, possibly the mold, and may cause a fire.

3. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the hose and fittings. Replace if wear or weakness is evident or suspected.

4. Arrange the hoses and fiberglass roving guides so that the fiberglass strands DO NOT rub against any of the hoses at any point. If allowed to rub, the hose will be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also, the material may spew onto personnel in the area.

2.7 Toxicity of Chemicals

A. Magnum Venus Plastech recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No.33, Chapter 14, and NFPA No.91.

B. Contact your chemical supplier(s) and determine the toxicity of the various chemicals used as well as the best methods to prevent injury, irritation and danger to personnel.

C. Also determine the best methods of first aid treatment for each chemical used in your plant.

2.8 Treatment of Chemical Injuries

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, Magnum Venus Plastech recommends the use of protective clothing and eye wear in using polyester systems. However, users should be prepared in the event of such an injury. Precautions include:

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or is swallowed.

2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.

3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals have.

WARNING

Contact your doctor immediately in the event of any injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting your doctor.

Fast treatment of the outer skin and eyes that contact such chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment, however, may be incorrect for some chemicals; that is why you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

NOTE: **Refer to your System User Manual for complete and detailed operating instructions and service information.**

3.0 Equipment Safety

WARNING

Magnum Venus Plastech suggests that personal safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels). This equipment should only be operated or serviced by technically trained personnel!

WARNING

Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT THE GUN AT OR NEAR ANOTHER PERSON. (TREAT THE GUN AS IF IT WERE A LOADED PISTOL.)

3.1 Emergency Stop Procedures

The following steps should be followed in order to stop the machinery in an emergency situation

1. The ball valve located where the air enters the power head of the resin pump, should be moved to the “OFF” or closed position. To do this, simply rotate the lever on the ball valve 90 degrees. Doing this will cause all the system air to bleed out of the system in a matter of a few seconds, making the system incapable of operating

NOTE: Step 2 is a precautionary step and should be followed whenever the above mentioned ball valve is activated to the stop mode. Failure to do so, can damage the regulators and components on reactivating to the “ON” position.

2. Turn all system regulators to the “OFF” position (counter-clockwise) position

NOTE: Verify that the Catalyst relief line, located on the catalyst manifold, and the resin return line, located on the resin filter, are secured relieving catalyst and resin fluid pressure.

3. Catalyst pressure in the catalyst pump can be eliminated by rotating the ball valve on the catalyst manifold 90 degrees to the “open” or “on” position.

Note: The “open” or “on” position is when the ball valve handle is parallel (in line) with the ball valve body. The “closed” or “off” position is when the ball valve handle is perpendicular (across) the ball valve body.

4. Resin pressure in the resin pump can be eliminated by rotating the ball valve on the resin filter 90 degrees to the “open” or “on” position. Place a container under the ball valve to catch any resin that is ejected out of the valve.

3.2 Grounding

Grounding an object means providing an adequate path for the flow of the electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables. In any event, the grounding means should have the lowest possible electrical resistance. Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. Magnum Venus Plastech recommends grounding straps be made of AWG No.18 stranded wire as a minimum and the larger wire be used where possible. NFPA Bulletin No77 states that the electrical resistance of such a leakage path may be as low as 1 meg ohm (10 ohms) but that resistance as high as 10,000 meg ohms will produce an adequate leakage path in some cases. Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity. For further information, see **National Fire Protection Association** (NFPA) 77, titled "Recommended Practice on Static Electrical". Refer especially to section 7-7 titled "Spray Application of Flammable and Combustible Materials". Check with local codes and authorities for other specific standards that might apply to your application. NEVER USE HARD MATERIALS SUCH AS WIRE, PINS, ETC., TO CLEAR A PLUGGED GUN. HARD MATERIALS CAN CAUSE PERMANENT DAMAGE. DAB WITH A BRISTLE BRUSH, BLOW BACKWARDS WITH AIR UNTIL CLEAR WHILE WEARING A PROTECTIVE EYE SHIELD. REPEAT AS MANY TIMES AS NECESSARY. DO NOT PERFORM ANY MAINTENANCE OR REPAIRS UNTIL YOU HAVE FOLLOWED THE PRECAUTIONS STATED ABOVE. IF YOU, AS AN EQUIPMENT OPERATOR OR SUPERVISOR, DO NOT FEEL THAT YOU HAVE BEEN ADEQUATELY TRAINED OR INSTRUCTED AND THAT YOU LACK THE TECHNICAL KNOWLEDGE TO OPERATE OR PERFORM MAINTENANCE ON A PIECE OF MAGNUM VENUS PLASTECH EQUIPMENT, PLEASE CALL MAGNUM VENUS PLASTECH BEFORE OPERATING OR PERFORMING MAINTENANCE ON THE EQUIPMENT. IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE PRECAUTIONS OR ANY SERVICE OR OPERATION PRECEDURES, CALL YOUR MAGNUM VENUS PLASTECH DISTRIBUTOR OR MAGNUM VENUS PLASTECH.

NOTICE: All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind express or implied. The user should not assume that all safety measures are indicated or that other measures are not required.

DANGER: Contaminated catalyst may cause Fire or Explosion. Before working on the catalyst pump or catalyst accumulator, wash hands and tools thoroughly. Be sure work area is free of dirt, grease or resin. Clean catalyst system components with clean water only.

DANGER: Eye, skin and respiration hazard. The Catalyst, MEKP, may cause blindness, skin irritation or breathing difficulty. Keep hands away from face. Keep food and drink away from work area.

WARNING: Please refer to your catalyst manufacturer's safety information regarding the safe handling and storage of catalyst. Wear appropriate safety equipment as recommended.

Introduction:

Please make sure all appropriate personal protective equipment is used before start up of this unit. Refer to and follow the requirements of the Material Safety Data Sheets supplied by your coating material manufacturer for solvent, putty material and catalyst.

CAUTION: Always wear proper safety equipment (glasses, gloves, respirator, etc.) when working on the dispensing equipment.

This manual, the ***Putty Unit Operations Manual***, provides information you need to perform simple maintenance and repair on your equipment.

- ❑ Step-by-step assembly and disassembly procedures are included for each component.
- ❑ This manual includes Installation, Start-up and Shut-Down instructions.
- ❑ Step-by-step assembly and disassembly procedures are included for each component.

Please read this manual carefully. Follow the steps in the order given, otherwise you may damage the equipment or injure yourself.

Component Assemblies:

The Putty Unit consists of a number of components – these components will have their own detailed manuals and drawings. For complete repair and maintenance instruction please reference these manual.

- ❑ HV Pro Gun Repair Manual – Pour Unit

or

- ❑ Classic Pro Gun Repair Manual – Spray Unit

- ❑ Powerslide Powerhead Manual – Dual Rod – 5000 & 7000 Series
- ❑ CPPLS-1000 Chop Check Fluid Section Manual
- ❑ VHPC-1000 Metering Pump Manual – PHPC-7200

Air Requirements:

1. The system requires a supply of air (30cfm) and at least 100 psi.
2. We require a 1/2" inch (12-13mm) inside diameter air hose minimum (Use caution when using quick disconnects as they may restrict air flow.
3. Preferably the air will be clean, dry and oil free.

Assemble the unit:

1. Swing up and attach the Catalyst Manifold and Bracket to the support bar.
2. Connect the Catalyst Hose from the catalyst pump outlet to the Catalyst Manifold.
3. Install the Catalyst Jug into the into Catalyst Jug bracket.
4. Connect the poly tube from the Catalyst Relief Valve to the top edge of the Catalyst Jug
5. Connect the poly tube from the Catalyst Dumb Valve to the top edge of the Catalyst Jug
6. Connect the Catalyst Feed Tube to the Catalyst Jug – measure and cut the feed tube then install onto the Catalyst Pump Inlet fitting.
7. Attach the Flush Tank Bracket to the main post and install Flush Tank (see Fig. 2)

Fig. 2

Hose Connections:

8. Attach Flush Tube (solvent to the gun) to the outlet (SOLVENT) side of the flush tank (see Fig. 4)

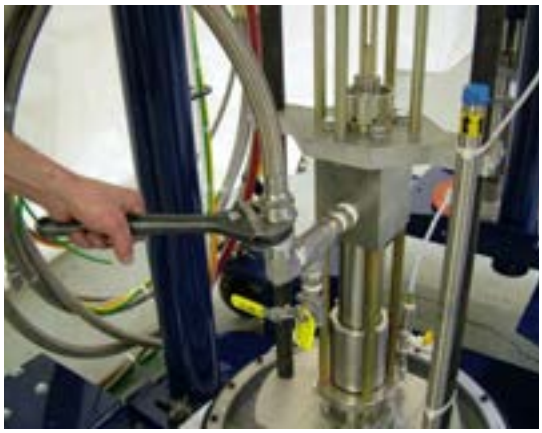
Fig. 4

9. Attach ¼ inch air hose from regulator on manifold to flush tank or flush pump (see figures 5)

Fig. 5

10. Connect the Putty Hose

Fig. 9



Pre Startup Instructions:

1. Check all hoses for wear or damage, replace if necessary.
2. Check to be sure you have appropriate quantities of Putty material & Catalyst to complete the job.
3. Check and repair or replace any damaged items before starting a job.
4. Located on the Putty Ram unit check and adjust the Ram lower limit. By adjusting the APD-1011 bracket the RAM stop position can be adjusted (see “Adjust the Drum Low Level Limit” below).

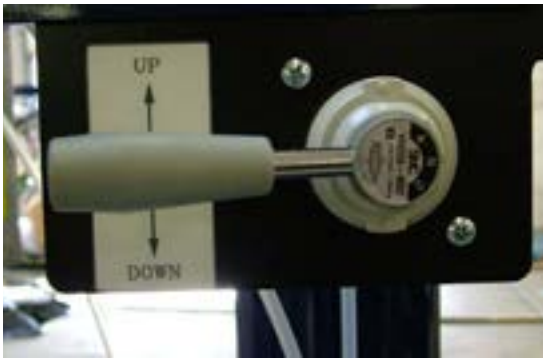
Priming Solvent:

1. Close the main inlet air valves on the main air manifolds (see Fig. 12)

Fig. 12

2. Connect 1/2 inch main air supply to the Air Manifold (see Fig. 12)
3. Turn all regulators counterclockwise to full off and close all ball valves on the pump supply.
4. Make sure Ram control levers are in “neutral” position (see Fig. 13)

Fig. 13



5. Open Main Air Supply Ball Valve and listen for air leaks. The ball valve has a safety relief port and air will leak from the port until the valve is fully open or closed.
6. Secure all fittings and correct leaks if found
7. Fill Flush Tank with appropriate cleaning agent or place solvent pump onto an approved container full of the cleaning agent.
8. Close the relief valve on the top of the Flush Tank.

9. Open the Ball Valve and slowly turn up regulator pressure to Flush Tank or solvent pump, if pump is used turn up regulator until pump begins stroking (see Fig. 14)

Fig. 14

10. Secure all solvent leaks, if any
11. Bring solvent pump pressure up to 35–40 psi (2.2 - 2.8 bar) on regulator gauge or 50 psi (3.5 bar) for flush tank. (reference Fig. 14)
12. Wait for solvent pump to stall or stop
13. Test flush system on gun block, by pressing the flush button, test both solvent and air purge if applicable.

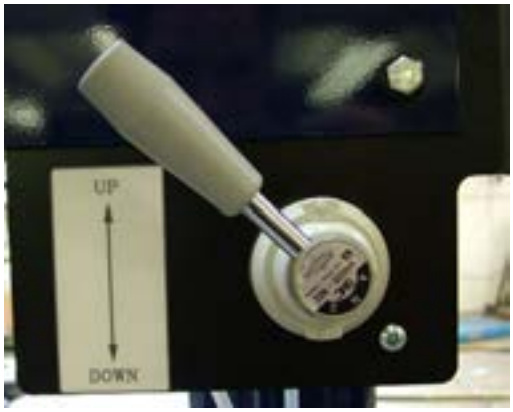
Priming Putty Pump:

1. Fill solvent cups with throat seal liquid (see Fig. 16)

Fig. 16

2. Open the Ball Valve off the regulator and gauge marked Airlift cylinder (see figure 18).
3. Open ram control lever to “up” position (see Fig. 17)

Fig. 17



4. Slowly turn up Ram Pressure Regulator (marked AIR LIFT) to 10 -20 psi (see figure 18)

Fig. 18

5. Ram should begin to lift, check for hoses catching or kinking
6. Allow ram to go to full “up” position (clearance for drum)
7. Once ram is to maximum up position, tape the Piston Boot (60531-1) the round piece of plastic (use plastic boot as a template to make more before installing) to the top of the barrel piston. Make sure that the round hole in the center of the plastic piston boot is centered with the opening at the bottom of the barrel piston.

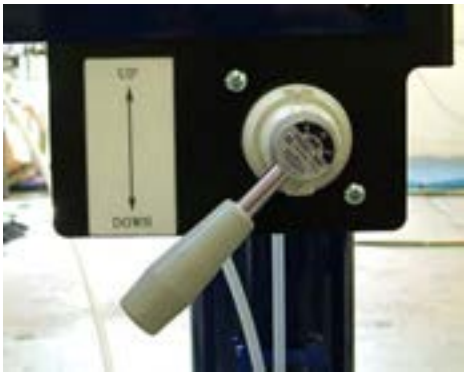
NOTE: If the 55-gallon (200 liter) drum has a plastic liner it is helpful to prevent the liner from being pushed down into the drum. Use the ring from the drum top to hold the liner in place or tape the liner to the outside of the drum. Inspect the drum for dents and damage, using a dented or damaged drum can damage the piston seals and cause leaking.

8. Slide 55-gallon (200 liter) drum of Putty onto the unit and center drum to the barrel piston.
9. Recheck Piston Boot (60531-1) as the opening must be lined up with intake of pump
10. Open ball valve located at the top of the barrel piston; this will allow air trapped between the barrel piston and the putty to escape. (see Fig. 19)

Fig. 19

11. To lower barrel piston down into the drum, push rotary valve (06275) handle to down position (see Fig. 20).

Fig. 20



12. Once barrel piston has started into Putty drum, slowly increase Airlift regulator pressure 40 to 60 psi.

NOTE: Allow time for air to be pushed out of the ball valve (06276) at the top of the barrel piston.

13. Once barrel piston has come to a complete stop and a small amount of material starts to come out the ball valve close the ball valve at the top of the barrel piston.
14. Remove the Mixer assembly or Nozzle from the front of the gun mix chamber.

15. Position dispensing block / gun over an appropriate waste container to allow priming of lines.

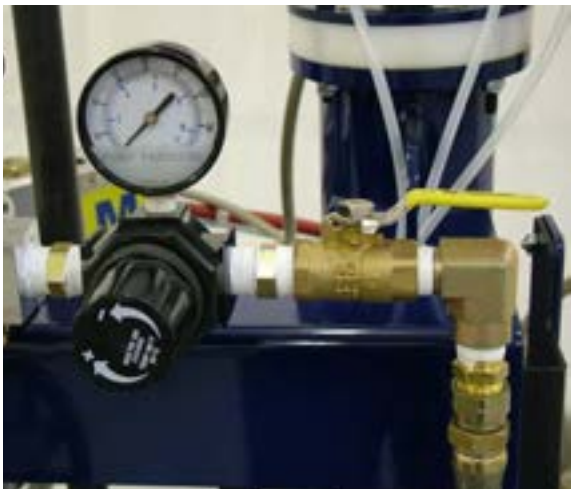
15a. **Pour:** Pull the manual gun handle (58148-1) back to the open position so that the 3-way valve (09169) is engaged.

15b. **Spray:** When priming a Putty Spray gun, pull the trigger all the way back and engage the trigger lock. The mix chamber should not be attached at this time.

16. Open the Pump Ball Valve to allow pump operation (see Fig. 23).

17. At the air manifold, slowly increase Regulator marked pump pressure (see Fig. 23).

Fig. 23



18. Adjust Pump Regulator as needed to maintain a slow uniform movement of the Putty pump.

19. Allow the pump to run until a steady flow of Putty material is being dispensed out of the dispensing block with no air pockets.

20. **Pour:** Push the gun manual handle (58148-1) all the way forward to close gun

20a. **Spray:** Disengage the trigger lock of the Putty Spray gun and release the trigger to close gun.

21. Flush the dispensing head.

22. Leave Ram Control Lever in “down” position

Priming Catalyst System:

PRIMING CATALYST TO GUN (POUR & SPRAY)

1. Do not use quick pin to install upper catalyst pump bearing block to slave arm at this time.

2. Check that all catalyst hoses and fittings are tight. Remove the Mix Chamber from the front of the gun (pour and spray).

3. Catalyst jug should be filled at least 3/4 full with appropriate catalyst. Make sure to close the catalyst recirculation valve on the catalyst manifold.

4a. **Pour:** To prime catalyst to the Putty Pour Gun, pull manual gun handle (58148-1) all the way back. The gun handle should engage button on 3-way air valve (09169).

4b. **Spray:** To prime catalyst to the Putty Spray gun, pull the trigger all the way back and engage the trigger lock. The mix chamber should not be attached at this time.

5. To prime catalyst system, use priming knob (50100-1) at the top of the catalyst pump. Slowly hand pump priming knob using long up and down strokes until a steady flow of catalyst is being dispensed out the gun. Lean the top of the catalyst pump up against the connecting rod.

NOTE: When hand priming catalyst pump, resistance should increase uniformly between the up-stroke and the down stroke when building up pressure.

6. Secure leaks, if any

7. Close dispensing head / gun

8. Position outlet of head / gun over a flush container

9. Flush & Air purge as necessary, a sudden purge of material from dispensing head is likely and could splash, so be cautious

Mixing and Dispensing:

1. Attach Static Mixer assembly to outlet on dispensing head / gun, apply lubricant to threads prior to attachment (see Fig. 34)

Fig. 34

2. To build fluid pressure, on the Putty pump push the priming button (09188) located on the air manifold (see figure 36).

Fig. 36

3. While pushing the priming button in, slowly increase the Putty pump regulator, 30 to 40 psi as a starting point. Once pump has come to a stop, release priming button.

4. With the Dispense head / Gun closed and the Catalyst Pressure Dump valve closed hand prime catalyst pressure to at least 200 psi (14bar).

5. Pin top and bottom of the Catalyst Pump at the desired percentage.

6. Install catalyst injector and mix chamber onto the gun, both pour and spray.

NOTE: Use a small amount of red grease on the mix housing threads before installing mix tube to gun (pour and spray).

7. **Pour:** Install mixing tube (05260) onto gun head, making sure there is a seal (02029-1) between the mix housing and the adapter union fitting (54861-1). The static mixers (05271) have a notch on one end that inner lock the four mixers together.

NOTE: The notch should face up when installing into the mix tube (05260).

7a. **Spray:** Install mixer housing and nozzle assembly onto mix chamber. Attach air supply to splatter nozzle.

8. Open Dispensing head / Gun and allow mixed material to flow out of mixer into a container for 4-5 seconds

9. Begin dispensing a bead of material and check for mix by reviewing uniformity of color (see Fig. 37)

Fig. 37

Output and Cure Time test:

1. Weigh and zero a container on a appropriate size scale

2. Open the Dispense Head / Gun and allow material to flow for a second or two then quickly move over the container. Start timing for 1 minute or a known amount of time. Also check time or start stop watch for Gel Time test.

3. Close Dispensing Head / Gun and weigh dispensed material – this will provide the weight per minute. (see Fig. 42)

4. Continue to observe the material until it begins to gel and note the elapsed time.

Fig. 42

Flushing, Cleaning & Shutdown:

When finished with dispensing, it is necessary to flush and clean mixer and Dispense Head / Gun.

1. Open Dispensing Head / Gun momentarily to allow Putty pump shafts to run to full down position.
2. Close Dispensing Head / Gun valve all the way.
3. Position outlet of mixer into approved waste container
4. Properly Flush / Air purge the Mix Chamber and Mixer assembly.
5. Depending on the Mixer assembly installed we recommend at this point removing the Mix Chamber and pushing out the mixer elements into a container for cleaning. An appropriate bottle brush should be used for cleaning out the mixer housing and the mixer elements should be cleaned by hand (see figures 44 & 45)

Fig. 44

Fig. 45

5a. Clean out the outlet ports as much as possible in the dispensing head with solvent and brush

5b. Inspect mixer elements for wear and breakage and replace if necessary

6. Turn main air “off” to system and clean the Dispense Head / Gun handle.
7. Relieve the air pressure from the Flush Tank by lifting the relief valve ring.

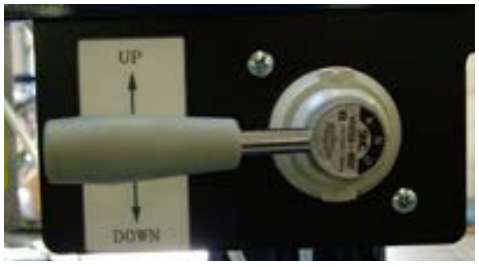
Changing Empty Drum:

1. Position drum catch by sliding over base of drum rim (see Fig. 47)

Fig. 47

2. Turn ram control lever to “neutral” position

Fig. 48

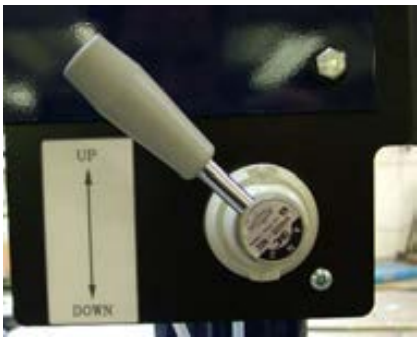


3. Open the ball valve connected to the gauge and regulator marked Ram Extraction (see figure 49).
4. Slowly turn up Ram Extraction regulator to 35 psi (see figure 49).

Fig. 49

5. Turn Ram control lever to “up” position

Fig. 50



6. Adjust pressure regulator marked Air Life to 20 psi

7. Hold drum down if it beings to lift, close and open the ram control lever intermittently to raise follower and pump out of drum.

8. It may be necessary to adjust both Air Lift and Ram Extraction pressures accordingly to necessitate removal with out lifting the drum.

9. After pump and follower are removed, inspect, seal and dispose of protector boot

10. Clean any build up of material on Piston Seals as well as follower plate

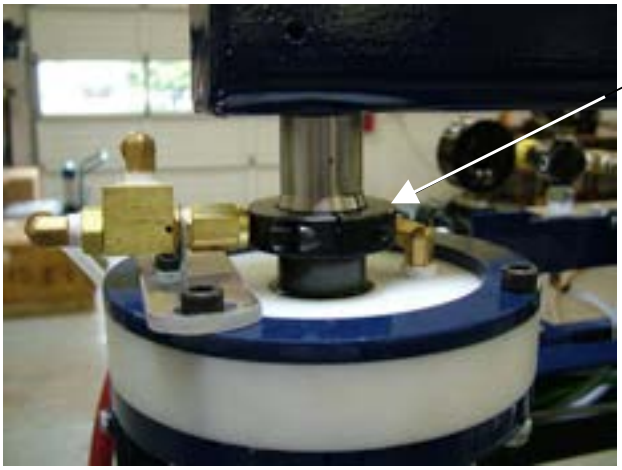
Note: The Standard Piston Seals (60520-3) for the Putty unit are Red Urethane. There is an optional pair of Black (EPDM) Piston Seals (60520-1).

11. Replace with “new” drum and refer back to procedures for priming new drum.

Adjusting Drum Low Limit:

1. To set the low level limit loosen the bolt holding the shaft collar in place.
2. Slide the shaft collar to the desired position on the post and tighten the bolt back down. (see figure 52)

Fig. 52



Note: The valve (09321) for the ADP-1010 turns off the air supply to the air motor valve thus stopping the pump.

Daily Start-up & Shut-down:

DAILY STARTUP

1. Check and refill all components and materials.
2. Close relief valve on the flush tank lid.
3. Open the lockout ball valve (7342) to pressure up the system.
4. Open catalyst recirculation valve and hand pump catalyst back to the catalyst jug until all the flow is air free.
5. Close catalyst recirculation valve and hand pump catalyst to build up catalyst pressure. Watch the catalyst pressure gauge, pressure should rise on both the up and down strokes.
6. Install catalyst injector and mix chamber (pour and spray).
7. **Pour:** Reassemble and attach static mixer assembly.

7a. **Spray:** Reassemble and attach mixer housing and nozzle. Connect the air supply to the splatter nozzle.

8. Check flush system for proper operation.
9. Push the priming button to pressurize pump.

DAILY SHUT-DOWN

1. Drain water trap filter (06989) daily.
2. Thoroughly flush the gun.
3. **Pour:** To shut down the putty pour unit, remove static mixer tube and push the four static mixers (05271) out of tube.

3a. **Spray:** To shut down the putty spray unit, disconnect air supply to the splatter nozzle. Remove and disassemble the mixer housings and push the static mixers (05244) out of the housings.

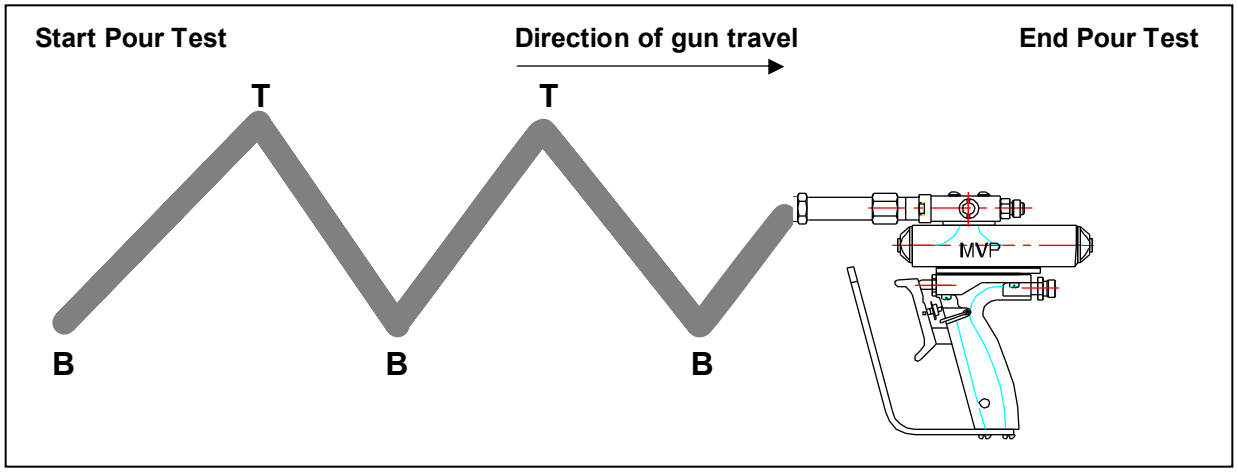
4. Clean mixers and mix tube (pour and spray).
5. Remove mix housing from gun block and clean (spray and pour).
6. Close the lockout ball valve (07342) to relieve air pressure from system.
7. Lift the relief valve on the flush tank lid to release flush tank pressure.
8. Open and then close the catalyst recirculation valve on the catalyst manifold to relieve the catalyst pressure.

NOTE: ***Do not leave barrel piston in 55-gallon drum if the system will be idle for more then two weeks.***

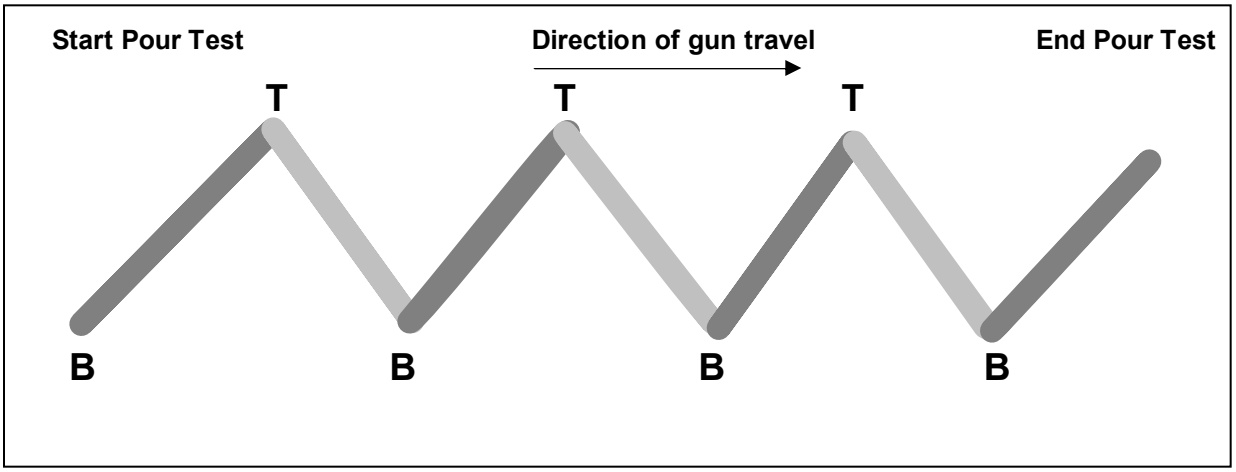
Mix Meter / Pour Test:

The same process and results that are used for testing the spray can be used for testing a pour system. By pouring a bead of material in an up and down" zig zag" pattern then observing the results.

Note that depending on the length of the mixer there will be a delay in the metering issue and where it appears on the pattern.



Test 1



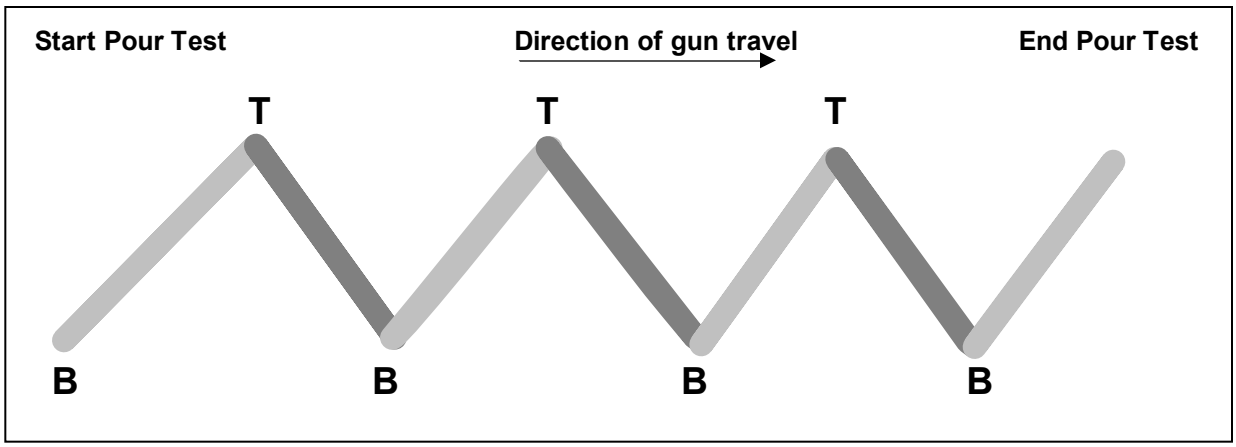
Result 1:
Material delivered at the top and bottom of the stroke is not curing or curing more slowly than the material delivered in the middle of the up- and down-stroke, see figure above.

Indicates: Low/no catalyst at top (T) and bottom (B) of the pump stroke.

Probable Cause: There is no or improper accumulation effect in the catalyst system. Normally this is only a problem at high pressures.

Solution: Check to be sure you are using the proper catalyst hose, with or without core. Install a catalyst accumulator if needed. Check for a restriction in the catalyst system.

Test 2



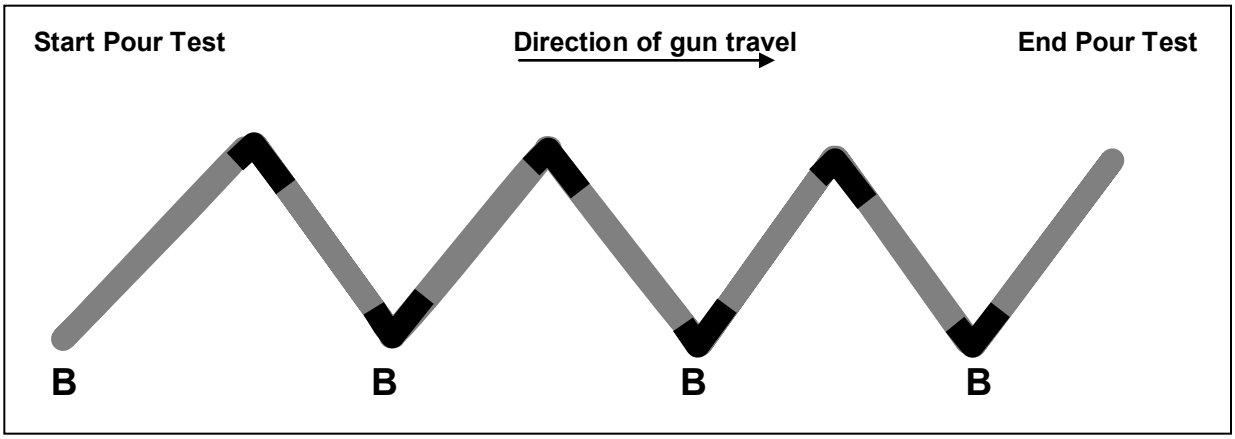
Result 2:
Material delivered at the top and bottom of the stroke is hot (curing very rapidly). Also thin areas of material might be noticeable compared to the volume delivered in the middle of the stroke, see figure above.

Indicates: Low resin at the top (T) and bottom (B) of the pump stroke.

Probable Cause: There is no or improper accumulation effect in the resin system.

Solution: Resin accumulator full of hard material or has a blockage. Clean resin filter and reinstall. Incorrect accumulator installed. Pump pressure is too high, lower resin pressure.

Test 3



Result 3:
Material delivered at the top and bottom of the stroke is not curing or curing more slowly than the material delivered in the middle of the up- and down-stroke, see figure above.

Indicates: Low/no catalyst at top (T) and bottom (B) of the pump stroke.

Probable Cause: There is no or improper accumulation effect in the catalyst system. Normally this is only a problem at high pressures.

Solution: Check to be sure you are using the proper catalyst hose, with or without core. Install a catalyst accumulator if needed. Check for a restriction in the catalyst system.

Result 4:
Material delivered at the top and bottom of the stroke is hot (curing very rapidly). Also thin areas of material might be noticeable compared to the volume delivered in the middle of the stroke, see figure above.

Indicates: Low resin at the top (T) and bottom (B) of the pump stroke.

Probable Cause: There is no or improper accumulation effect in the resin system.

Solution: Resin accumulator full of hard material or has a blockage. Clean resin filter and reinstall. Incorrect accumulator installed. Pump pressure is too high, lower resin pressure.

Dispense Head / Gun:

Spray Units:

The Putty Unit uses the Classic Pro Gun Assembly for Spray units – for detailed instructions for Repair & Maintenance of the Classic Pro Gun please reference the manual "**Classic Pro Gun Manual**".

Pour Units:

The Putty Unit uses the HV Pro Gun Assembly for Pour units – for detailed instructions for Repair & Maintenance of the HV Pro Gun please reference the manual "**HV Pro Gun Manual**".

Fluid Section Repair:

The Putty Unit uses the CCPLS-1000 Chop Check Fluid Section Assembly – for detailed instructions for Repair & Maintenance of the Chop Check Fluid Section please reference the manual "**CCPLS-1000 - Chop Check Fluid Section Manual**".

Powerhead Information:

The Putty Unit uses the 7" Powerslide Powerhead – for detailed instructions for Repair & Maintenance of the Powerslide Powerhead please reference the manual "**VPH-5000-P & VPH-7000-P Powerhead Manual – Putty Units**".

Optional:
The 5" Powerslide Powerhead can also be used for a lower ratio pump assembly. Also reference the manual "**VPH-5000-P & VPH-7000-P Powerhead Manual – Putty Units**".

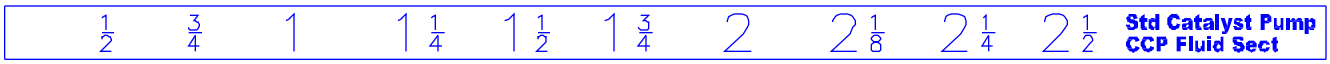
Metering Pump Manual:

The Putty Unit uses the PHPC-7200 Metering Pump – for detailed instructions for Repair & Maintenance of the PHPC-7200 Metering Pump please reference the manual "**VHPC-1000 Metering Pump Manual"**.

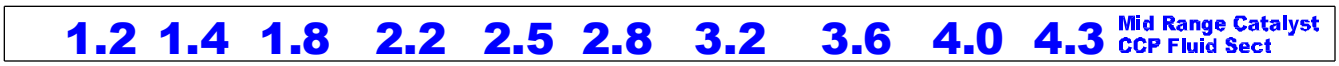
Optional:
The Putty Unit can also be fitted the PHPC-4200 Metering Pump – for detailed instructions for Repair & Maintenance of the PHPC-7200 Metering Pump please reference the manual "**VHPC-4200 Metering Pump Manual"**.

Catalyst Pump Percentage Decal:

(CCPLS-1001 Slave Arm Decal) Using the PHPC-7200 Metering Pump and CCPLS-1000 Chop Check Fluid Section

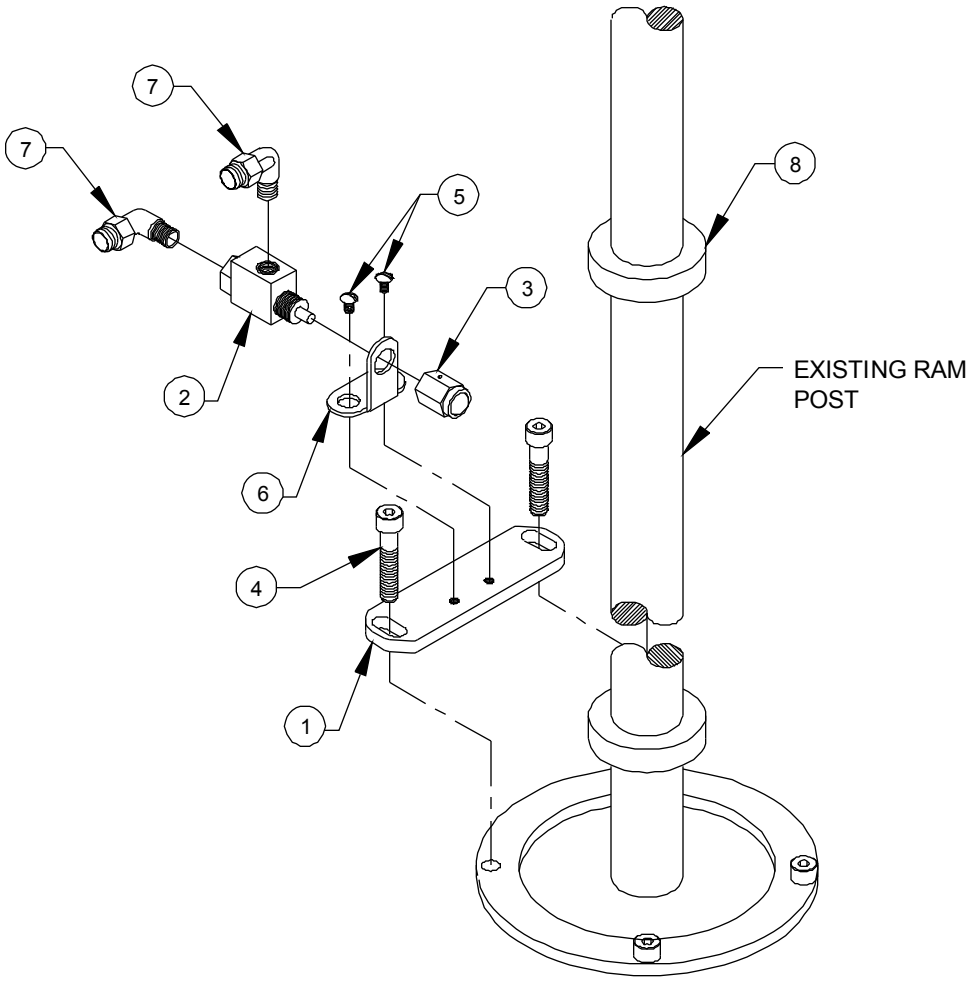


(CCPLS-1002 Slave Arm Decal) Using the PHPC-4200 Metering Pump and CCPLS-1000 Chop Check Fluid Section



Parts Drawings:

APD-1010	**RAM LOWER LIMIT**
APD-1000	**FRAME WORK RAM CYLINDER ASSY.**
MA-34	**AIR MANIFOLD ASSEMBLY**
CCPLS-29100	**CHOP CHECK PUMP ASSEMBLY**



MAGNUM VENUS PRODUCTS

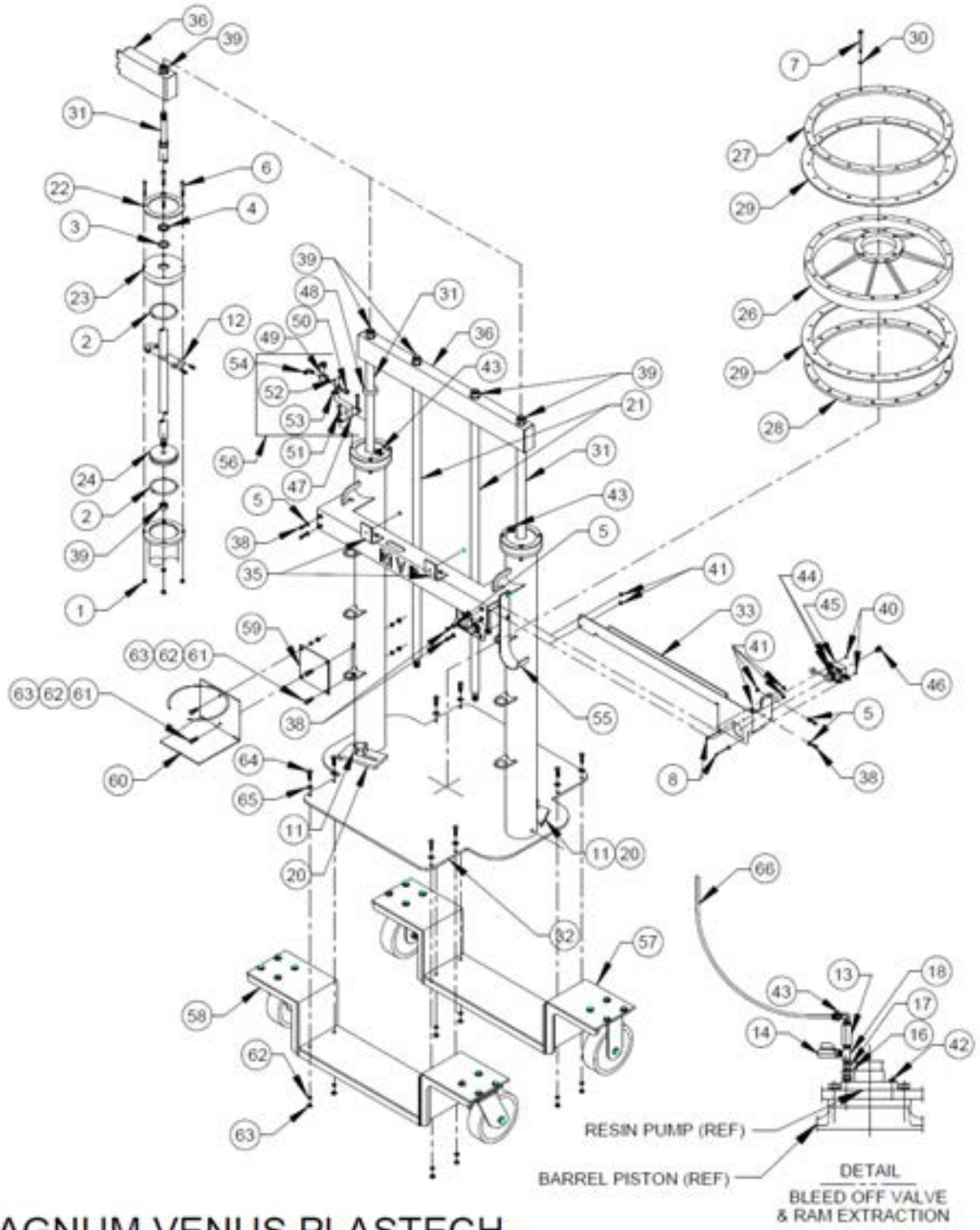
ASSY - FRAME WORK RAM CYL.	APD-1010

REV - 09/08/05 BT2

ASSY - FRAME WORK RAM CYL. APD-1010

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	APD-1009	1	MOUNT BRACKET
2	09321	1	NORMALLY OPEN VALVE
3	09343	1	BALL OPERATOR
4	F-CS-05C-20	2	CAP SCREW
5	F-CS-832-04	2	CAP SCREW
6	09068	1	VALVE BRACKET
7	MPH-2534	2	POLY ELBOW
8	APD-1011	1	SHAFT COLLAR



MAGNUM VENUS PLASTECH

ASSY - FRAME WORK RAM CYL. APD-1000

REV. B = ADDED ITEMS 59, 60, 61, 62, & 63 TO DWG. 6/7/04 JEM
C = ADDED CASTER ASSYS' TO DWG, WERE OPTIONAL. 10/13/04 JEM
D = UPDATED PART NUMBERS FOR 1,2,38,40,42,44,54. ADDED ITEM 66. 09/07/05 BT2
E = ITEM 44 WAS PF-HN-04TS-04 05/21/08 BT2

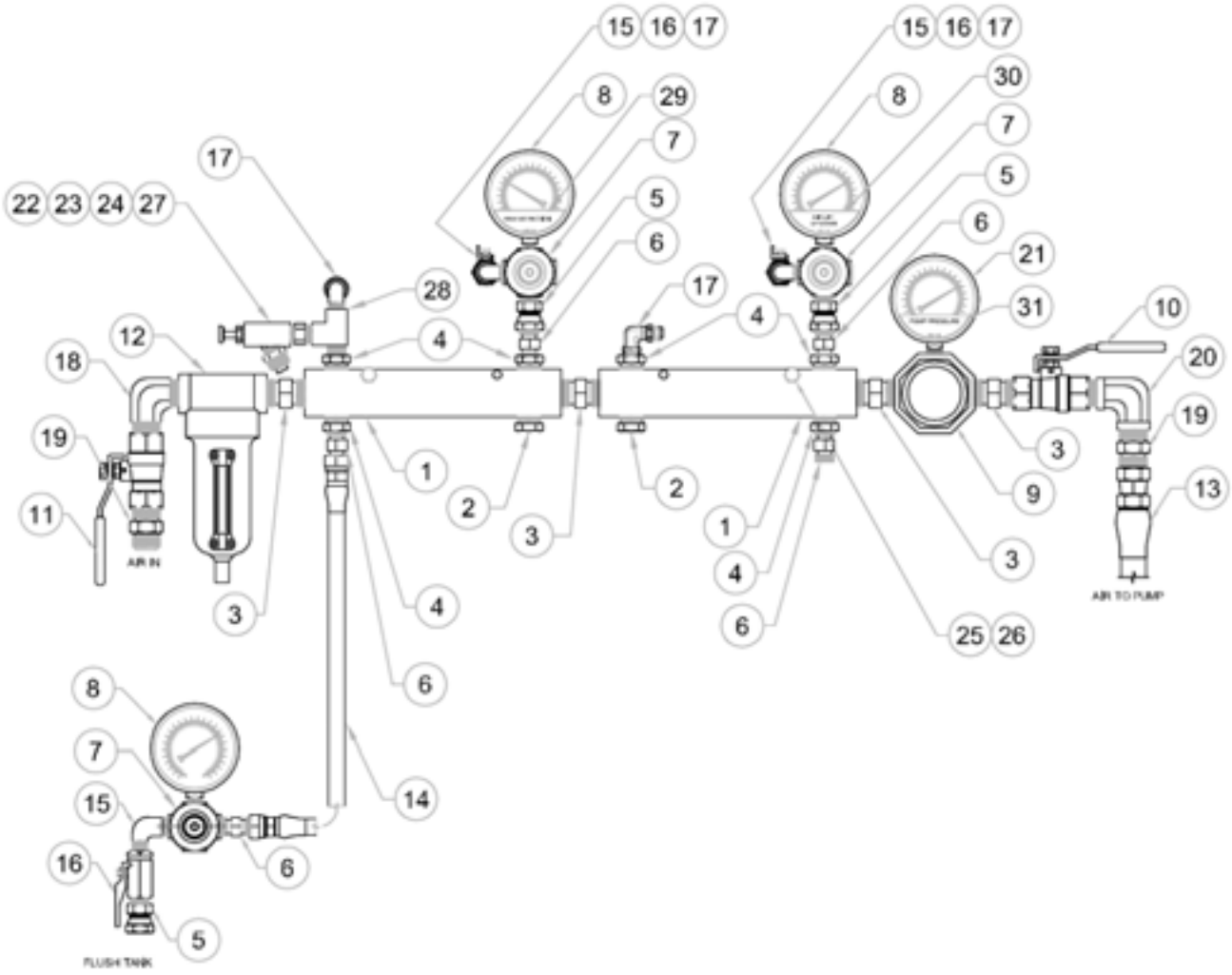
ASSY - FRAME WORK RAM CYL. APD-1000

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	F-LN-05C	8	LOCK NUT
2	O-B-342	4	O-RING
3	02005	2	CYLINDER ROD SEAL
4	02007	2	CYLINDER ROD WIPER
5	02576	10	WASHER
8	02668-18	6	SOCKET HEAD CAP SCREW
7	02685-24	18	SHOULDER BOLT
8	02805-16	2	PAN HEAD SCREW
11	06270	2	BARREL HOD DOWN KNOB
12	06271	2	CYLINDER ROD CLAMP COLLAR
13	06274	1	CHECK VALVE
14	06276	1	BALL VALVE
16	06278	1	SWIVEL ADAPTER
17	06280	1	MALE CONNECTOR
18	06282	1	FEMALE RUN TEE
20	APD-1005	2	BARREL CLAMP
21	APD-1003	2	SUPPORT ROD
22	60514-1	2	SUPPORT RING
23	60515-3	2	CYLINDER CAP
24	60517-1	2	LIFT CYLINDER PISTON
26	60519-11	1	BARREL PISTON
27	60519-13	1	TOP RING - BARREL PISTON
28	60519-5	1	BOTTOM RING - BARREL PISTON
29	60520-3	2	SEAL - BARREL PISTON
30	60521-1	18	SPACER - BARREL PISTON
31	APD-1004	2	CYLINDER ROD
32	APD-1001	1	FRAMEWORK LIFT CYLINDER
33	60533-1	1	SUPPORT PANEL
35	60539-1	2	MOUNT BRACKET - MANIFOLD
36	APD-1002	1	WELDMENT - SUPPORT BAR
38	F-HB-04C-12	8	HEX CAP SCREW
39	7201-1-12	8	HEX NUT
40	F-HN-832	2	HEX NUT
41	F-HN-04C	8	HEX NUT
42	PF-HP-04	1	PLUG
43	7701-6-2	5	POLY ELBOW
44	00383	3	POLY CONNECTOR
45	06275	1	ROTARY VALVE
46	00404	1	BREATHER VENT
47	APD-1009	1	MOUNT BRACKET
48	APD-1011	1	SHAFT COLLAR
49	09321	1	NORMALLY OPEN VALVE
50	09343	1	BALL OPERATOR
51	F-CS-05C-20	2	CAP SCREW
52	F-CS-832-04	2	CAP SCREW
53	09068	1	VALVE BRACKET
54	MPH-2534	2	POLY ELBOW
55	60534-1	1	SUPPORT HOOK
57	APD-1008-01F	1	FIXED WHEEL ASSY
58	APD-1008-01S	1	SWIVEL WHEEL ASSY
59	APD-1007	1	MOUNTING BRACKET
60	6101-4-01	1	FLUSH TANK BRACKET
61	F-HB-06C-16	4	HEX BOLT
62	F-SW-06	12	LOCK WASHER
63	F-HN-06C	12	HEX NUT
64	F-HB-06C-20	8	HEX BOLT
65	F-FW-06	8	FLAT WASHER
66	MPM-2052-1	20 FT.	FLAT WASHER

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
56	APD-1010	1	RAM LIMIT VALVE ASSY



MAGNUM VENUS PLASTECH

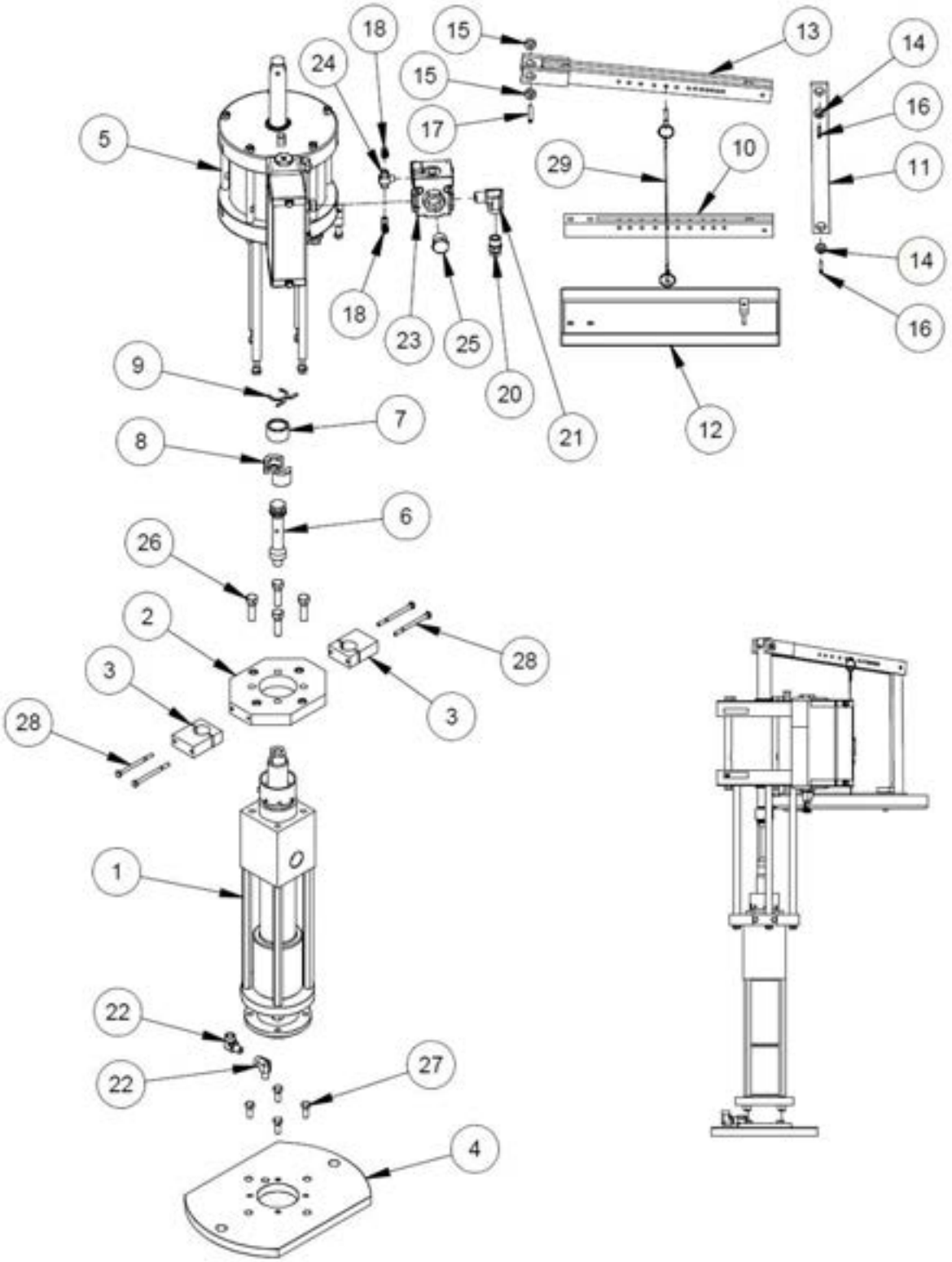
PUMP / RAM Manifold Assembly MA-34

REV. C = UPDATED GAUGES ON ILLUSTRATION, LABELS WERE PRESENT 07/31/07 BT2
D = ITEMS 7, 8, 15, AND 16 WERE QTY. 4 08/15/08 BT2
E = FIXED DESCRIPTION FOR ITEM 23 03/12/10 BT2
F = ADDED ITEMS 29, 30, AND 31 07/28/11 BT2

Pump / Ram Manifold Assy - Pour or Spray MA-34

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	MA-2001-1	2	MANIFOLD BLOCK
2	PF-HP-08	2	PLUG
3	PF-HN-08	4	NIPPLE
4	PF-RB-08-04	6	BUSHING
5	PF-SW-04	3	SWIVEL ADAPTER
6	PF-HN-04-04S	5	NIPPLE
7	09218	3	1/4" REGULATOR
8	AG-B2-100	3	100 PSI GAUGE
9	8405-1-1	1	REGULATOR
10	09350	1	1/2" BALL VALVE
11	7702-2-2	1	BALL VALVE - VENTED LOCKOUT
12	8404-1-1	1	1/2" FILTER W/METAL BOWL
13	01745-1	1	AIR HOSE
14	HA-0444-6	1	AIR HOSE
15	PF-ME-04	3	1/4-NPT MALE ELBOW
16	BV-FF44-L	3	1/4" BALL VALVE
17	7701-6-2	4	TUBE FITTING
18	PF-ME-08	1	MALE ELBOW
19	PF-HN-08-08S	2	NIPPLE
20	PF-SE-08	1	STREET ELBOW
21	AG-B2-160	1	160 PSI GAUGE
22	PF-HN-02-04	1	NIPPLE
23	8407-4-1	1	3-WAY VALVE
24	MPH-2534	1	FITTING
25	F-HB-04C-32	2	HEX BOLT
26	F-HN-04C	2	HEX NUT
27	8407-5-1	1	BUTTON
28	PF-ST-04-BR	1	STREET TEE
29	95163-EN	1	RAM EXTRACTION GAUGE LABEL
30	95157-EN	1	AIR LIFT GAUGE LABEL
31	95128-EN	1	PUMP PRESSURE GAUGE LABEL



MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY	CCP-29100

REV: A = VPH-7000-P-HD WAS VPH-7000-P, VLS-4613-HD WAS VLS-4613, ADDED PAT-PA-9110, VPH-10009, PAT-PA-9112 3/9/09 MDW

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CCPLS-1000	1	FLUID SECTION ASSY.
2	CCP-1008	1	PUMP MOUNT PLATE
3	CCP-1007	2	SUPPORT BRACKET
4	CCP-1009	1	SUPPORT PLATE
5	VPH-7000-P-HD	1	7" POWER HEAD ASSY. - HD
6	VLS-4613-HD	1	PISTON ROD ADAPTER - HD
7	PAT-PA-9110	1	SHELL RETAINER
8	VPH-10009	2	HALF SHELL
9	PAT-PA-9112	1	SLEEVE CLIP
10	CCP-1006	1	LOWER SLAVE ARM
11	CCP-1005	1	CONNECTING BAR
12	CCP-1003-01	1	DRIP TRAY ASSY.
13	86480-1	1	UPPER SLAVE WELD.
14	03501-1	2	BUSHING
15	03502-1	2	BEARING - UPPER SLAVE ARM
16	F-RP-04-20	2	ROLL PIN
17	F-RP-04-32	1	ROLL PIN
18	MPH-2534	2	POLY ELBOW
20	PF-HN-08-08S	1	HOSE ADAPTER
21	PF-SE-08	1	STREET ELBOW
22	PF-SE-04	2	STREET ELBOW
23	8407-1-1	1	VALVE
24	8407-3-1	1	SHUTTLE VALVE
25	PF-HP-12	1	HEX PLUG
26	F-HB-08C-28-GR8	4	HEX BOLT
27	F-HB-06C-16	4	HEX BOLT
28	F-HB-04C-56	4	HEX BOLT
29	52106-1	1	QUICK PIN CABLE

MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY CCP-29100

REV: A = VPH-7000-P-HD WAS VPH-7000-P, VLS-4613-HD WAS VLS-4613, ADDED PAT-PA-9110, VPH-10009, PAT-PA-9112 3/9/09 MDW

Revision Information:

Revision:	Description:
Rev. 08/2011	Created this manual
Rev: 07/2012	Updated the manual format and Address. Added the Terms & Conditions of Sale section to the manual.

MAGNUM VENUS PLASTECH

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Included with this operations manual are the following component manuals:

- ❑ VPH-5000-P & VPH-7000-P Powerhead Manual – Putty Units
- ❑ CPPLS-1000 Chop Check Fluid Section Manual
- ❑ VHPC-1000 Metering Pump Manual – (PHPC-7200)

- ❑ HV Pro Gun Manual – Pour Unit

or

- ❑ Classic Pro Gun Manual – Spray Unit

Rev. 07/2012